

## USGS NEIC Capabilities & Cascadia Earthquakes

Earthquakes ★ Floods ★ Hurricanes ★ Landslides ★ Tsunamis ★ Volcanoes ★ Wildfires

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*National Earthquake Information Center  
Golden, Colorado*



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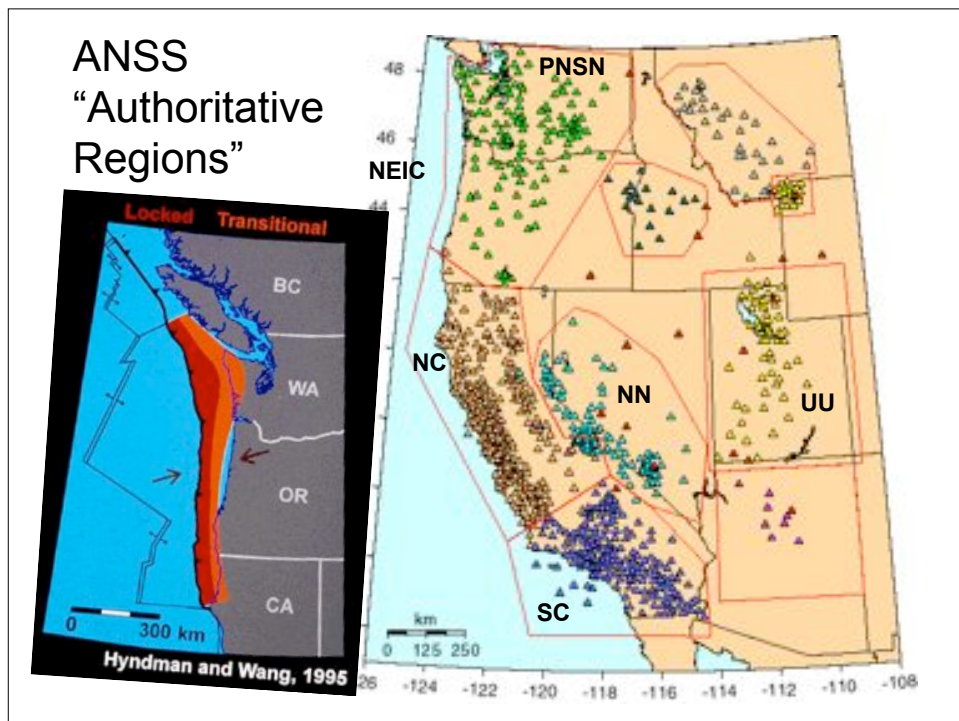
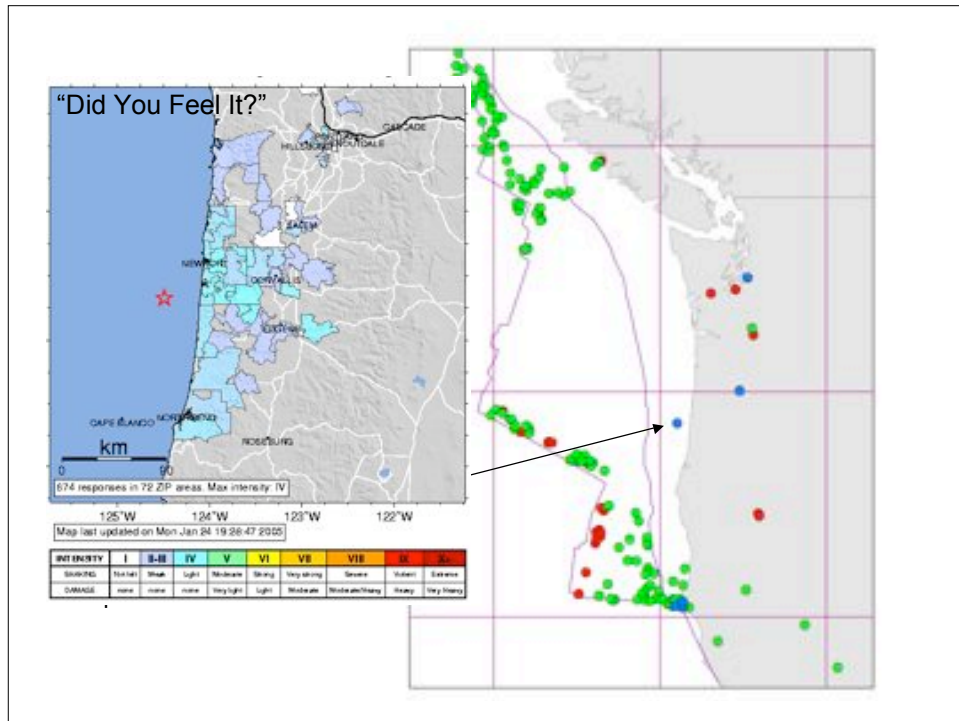
### Questions for NEIC from NEPEC:

How well, and how quickly, can offshore earthquakes in & around Cascadia (M~5) be located and characterized?

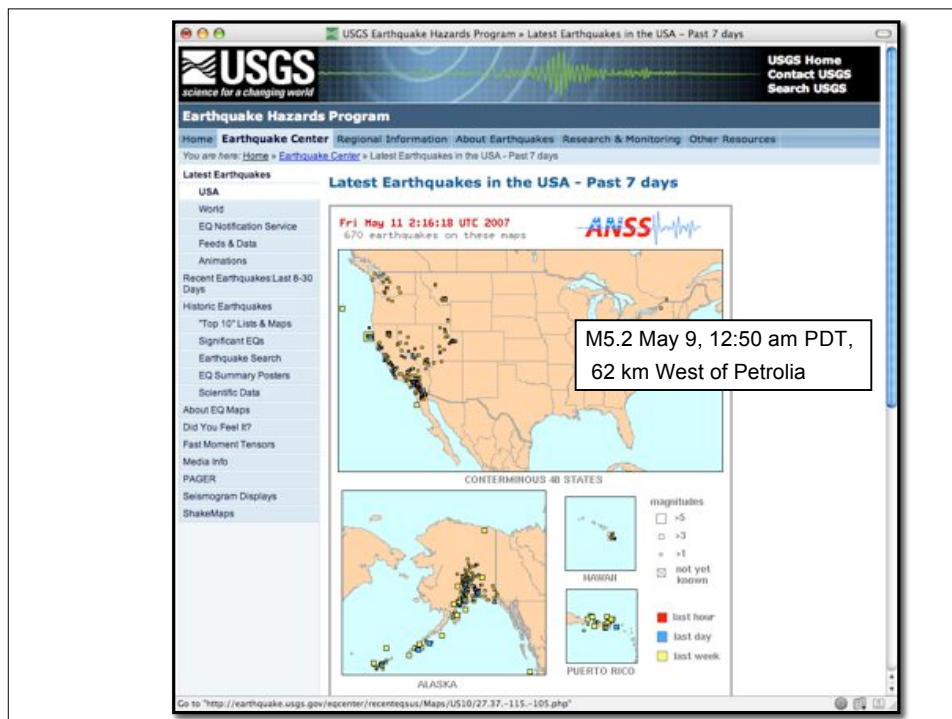
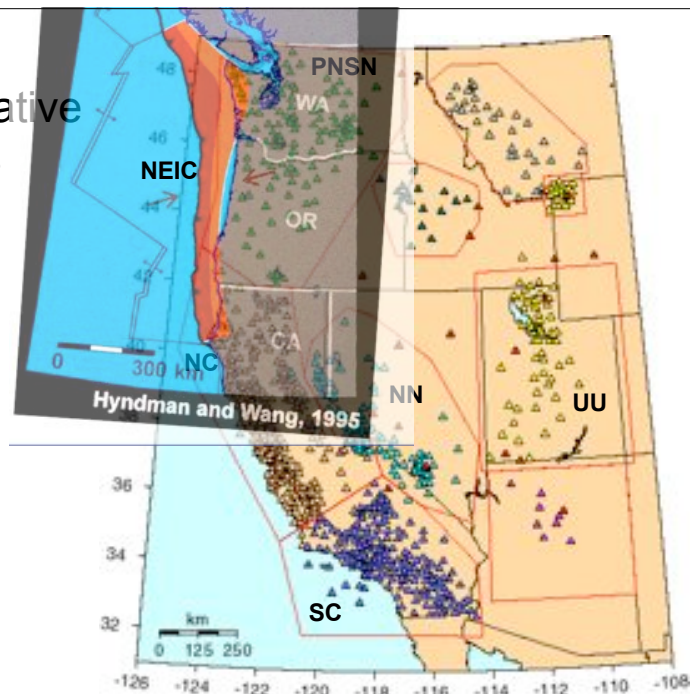
How do PNSN and NEIC divide responsibilities in this region?

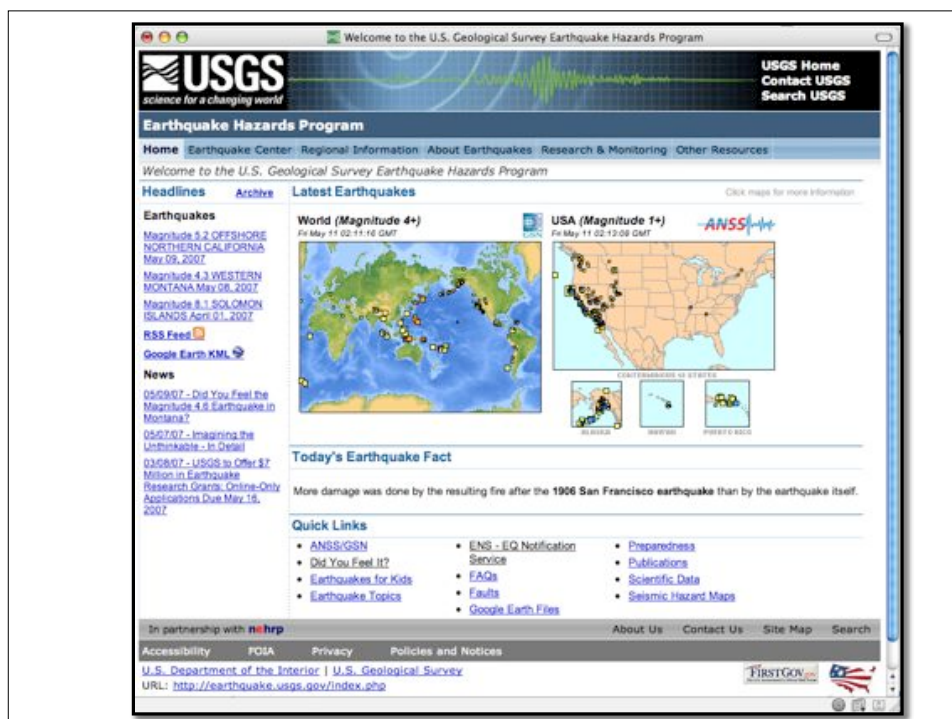
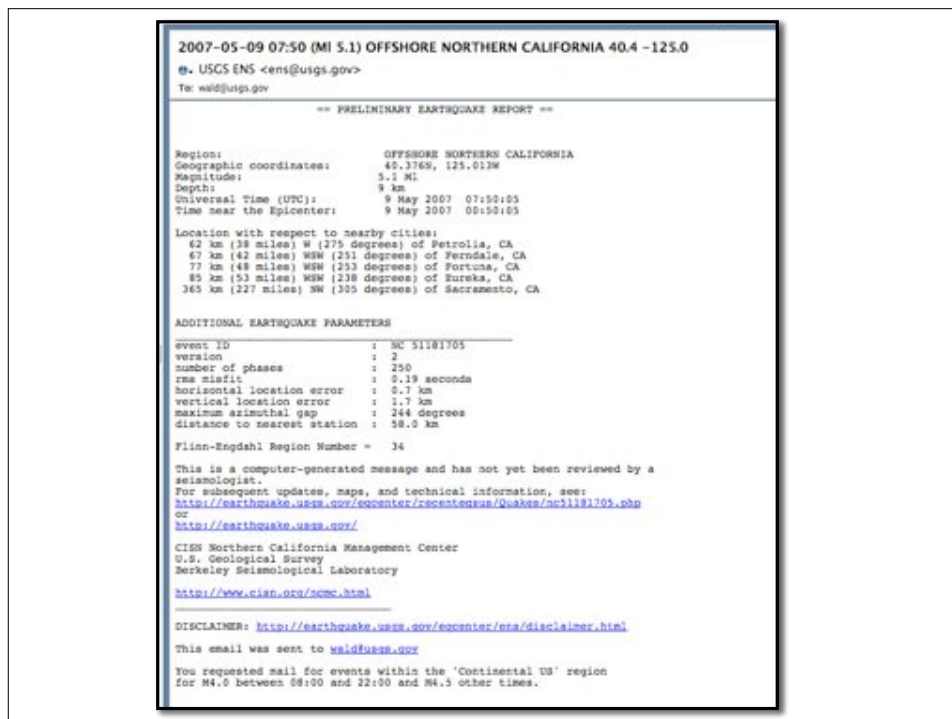
What issues might arise given different information sources for events offshore Canada, or near the California-Oregon border?



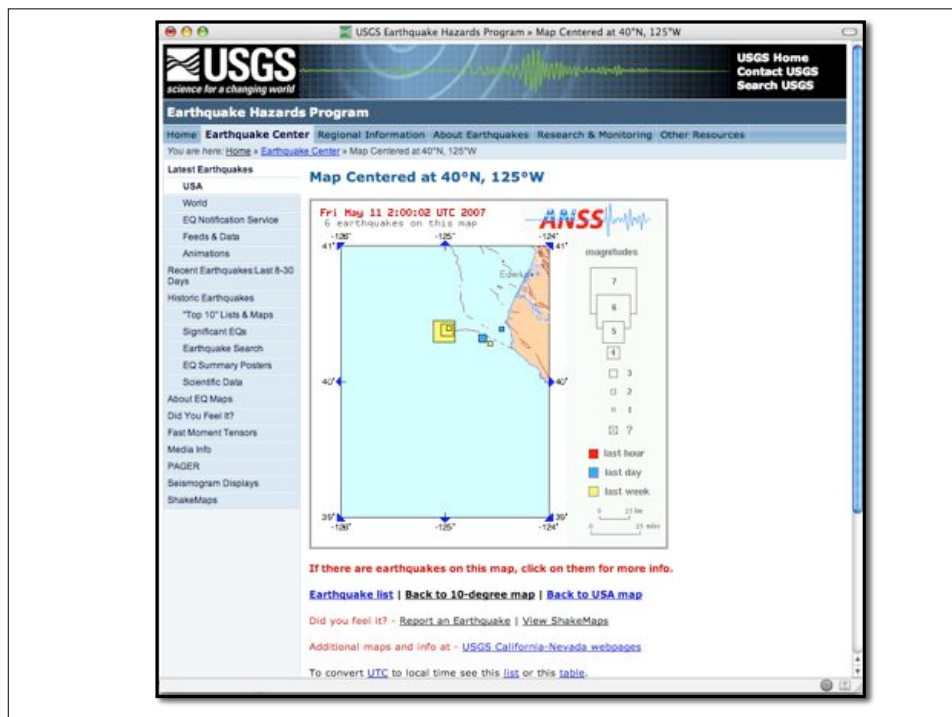
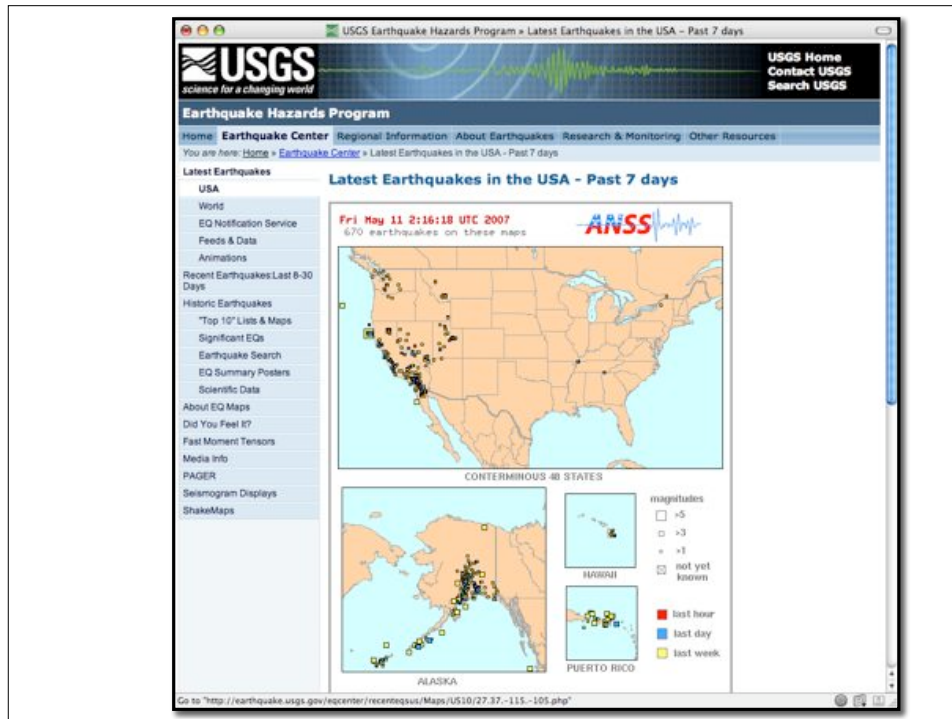


## ANSS Authoritative Regions









USGS Earthquake Hazards Program • Magnitude 5.2 - OFFSHORE NORTHERN CALIFORNIA

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- World
- EQ Notification Service
- Feeds & Data
- Animations

Recent Earthquakes Last 6-30 Days

Historic Earthquakes

- "Top 10" Lists & Maps
- Significant EQs
- Earthquake Search
- EQ Summary Posters
- Scientific Data
- About EQ Maps
- Did You Feel It?
- Fast Moment Tensors
- Media Info
- PAGER
- Seismogram Displays
- ShakeMaps

**Magnitude 5.2 - OFFSHORE NORTHERN CALIFORNIA**

**2007 May 9 07:50:05 UTC**

Details | Summary | Maps | Scientific & Technical | Additional Info | [Where can I find...?](#)

**Earthquake Details**

<b>Magnitude</b>	5.2
<b>Date-Time</b>	<b>Wednesday, May 9, 2007 at 07:50:05 (UTC)</b> = Coordinated Universal Time <b>Wednesday, May 9, 2007 at 12:50:05 AM</b> = local time at epicenter <a href="#">Time of Earthquakes in other Time Zones</a>
<b>Location</b>	40.376°N, 125.014°W
<b>Depth</b>	9 km (5.6 miles)
<b>Region</b>	OFFSHORE NORTHERN CALIFORNIA
<b>Distances</b>	62 km (38 miles) W (275°) from <b>Petrolia, CA</b> 67 km (42 miles) WSW (251°) from <b>Ferndale, CA</b> 77 km (48 miles) WSW (253°) from <b>Fortuna, CA</b> 85 km (53 miles) WSW (238°) from <b>Eureka, CA</b> 365 km (227 miles) NW (305°) from <b>Sacramento, CA</b>
<b>Location Uncertainty</b>	horizontal +/- 0.7 km (0.4 miles); depth +/- 1.7 km (1.1 miles)
<b>Parameters</b>	Nst=250, Nph=250, Dmin=58 km, Rrms=0.19 sec, Gp=245°, M-type=regional moment magnitude (Mw), Version=3
<b>Source</b>	<a href="#">California Integrated Seismic Net</a> <a href="#">USGS/ Caltech/ CGS/ UCB/ UCSD/ UNR</a>
<b>Event ID</b>	nc51181705

This event has been reviewed by a seismologist.

[Did you feel it?](#)

Report shaking and damage at your location. You can also view a map displaying accumulated data from your report and others.

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Details | Summary | **Maps** | Scientific & Technical | Additional Info | [Where can I find...?](#)

**Earthquake Maps**

Earthquake Location

Location Maps

Did You Feel It?  
Tell Us

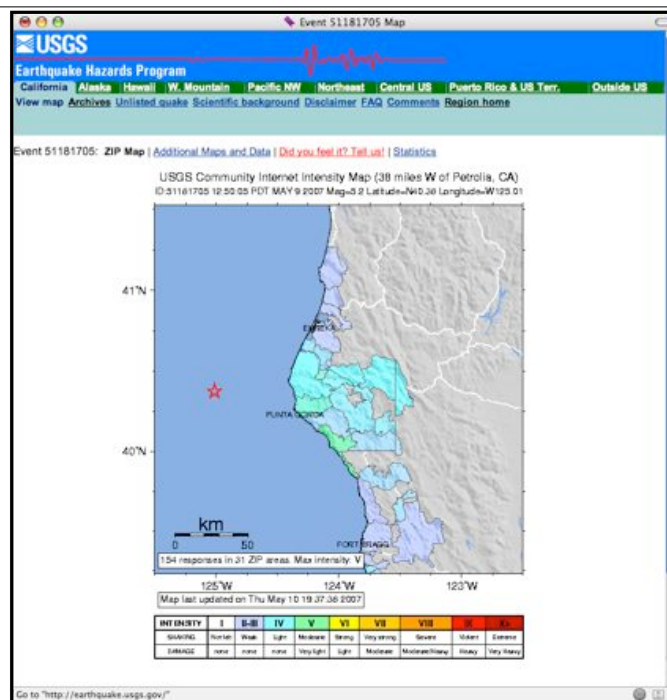
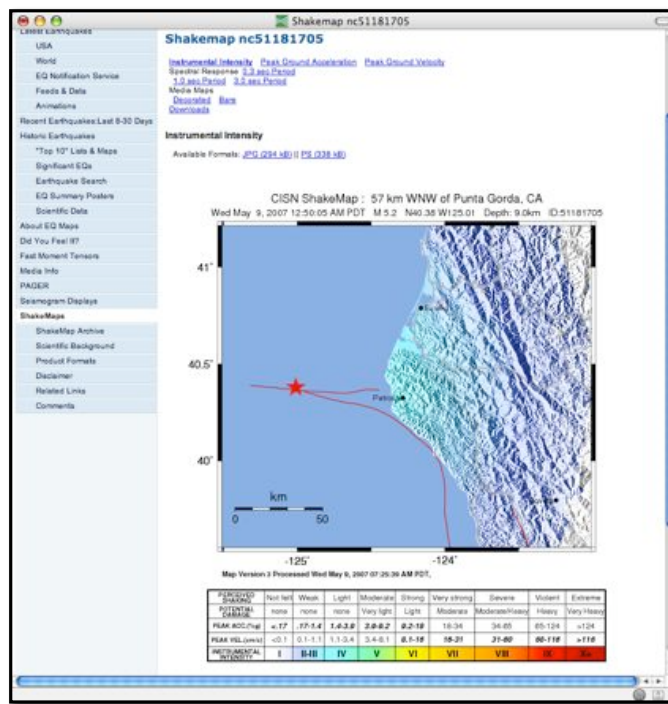
ShakeMap

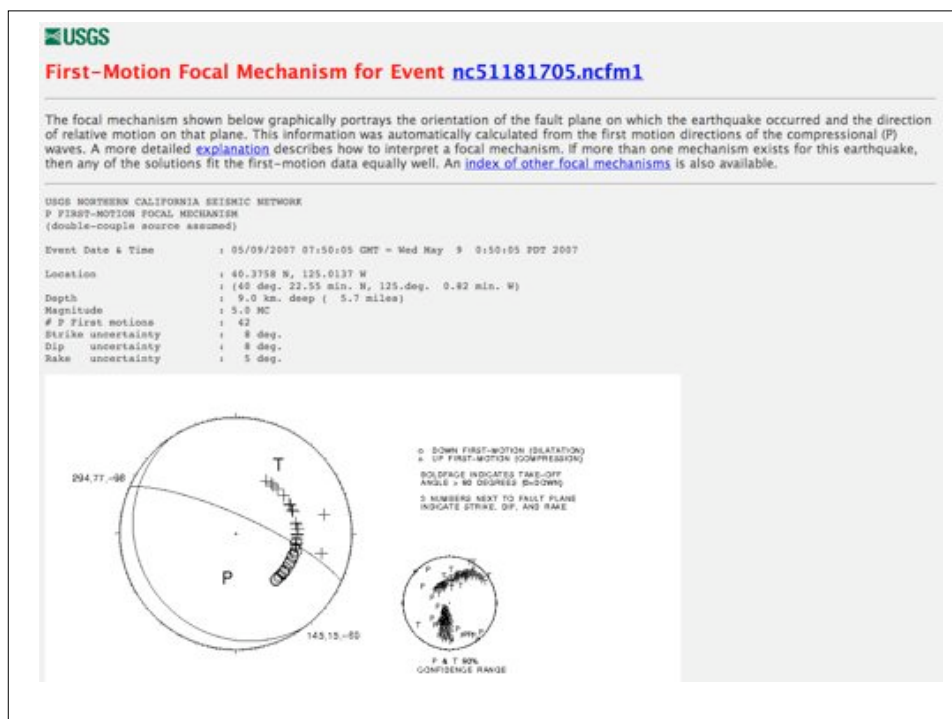
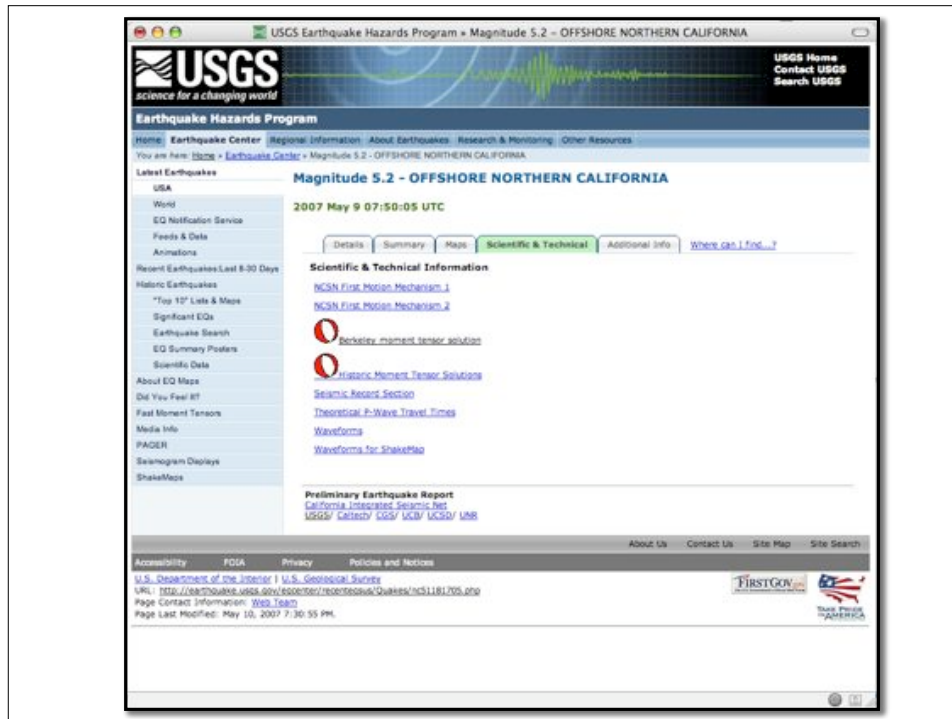
Historical Seismicity

Seismic Hazard Map

Google Map

**Preliminary Earthquake Report**  
[California Integrated Seismic Net](#)  
[USGS/ Caltech/ CGS/ UCB/ UCSD/ UNR](#)







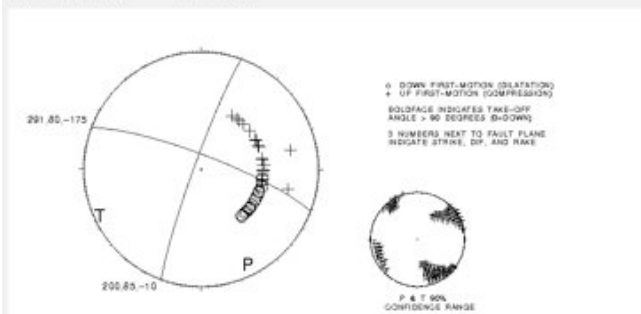


## First-Motion Focal Mechanism for Event [nc51181705.ncfm2](#)

The focal mechanism shown below graphically portrays the orientation of the fault plane on which the earthquake occurred and the direction of relative motion on that plane. This information was automatically calculated from the first motion directions of the compressional (P) waves. A more detailed [explanation](#) describes how to interpret a focal mechanism. If more than one mechanism exists for this earthquake, then any of the solutions fit the first-motion data equally well. An [index of other focal mechanisms](#) is also available.

USGS NORTHERN CALIFORNIA SEISMIC NETWORK  
P FIRST-MOTION FOCAL MECHANISM  
(double-couple source assumed)

Event Date & Time : 05/09/2007 07:50:05 GMT - Wed May 9 0:50:05 PDT 2007  
Location : 40.3758 N, 125.0137 W  
 : (40 deg. 22.55 min. N, 125 deg. 0.82 min. W)  
Depth : 9.0 km- deep ( 5.7 miles)  
Magnitude : 5.0 MC  
# P First motions : 42  
Strike uncertainty : 5 deg.  
Dip uncertainty : 30 deg.  
Rake uncertainty : 5 deg.



This is a preliminary UCB moment tensor solution for the event located 62 km W of Petrolia, CA; 40.376N 125.014W; Z=9km; ML=5.0; (USGS/UCB Joint Notification System) on May 9, 2007 at 7:50:05 UTC. Other information about this event can be viewed at: <http://earthquake.usgs.gov/recenteqsus/Quakes/nc51181705.php>

Reviewed by:  
Guilhem  
UCB Seismological Laboratory

Inversion methods: complete waveform  
Stations used: GASB, NUNO, JCC and WDC

### Berkeley Moment Tensor Solution

#### Best Fitting Double-Couple:

Mo = 7.81E+23 Dyne-cm  
Mw = 5.20  
Z = 11

Plane	Strike	Rake	Dip
NP1	188	24	85
NP2	96	175	66

#### Principal Axes:

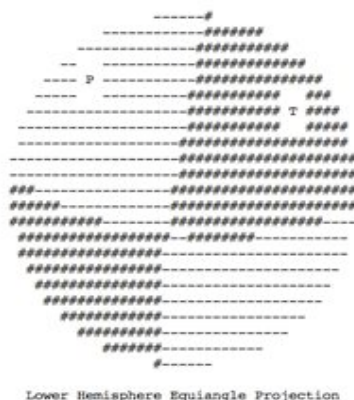
Axis	Value	Plunge	Azimuth
T	7.810	20	54
N	0.000	66	199
P	-7.810	13	320

Event Date/Time: May 9, 2007 at 7:50:05 UTC

Event ID: nc51181705

Moment Tensor: Scale = 10\*\*23 Dyne-cm

Component	Value
Mxx	-1.970
Mxy	6.908
Mxz	0.180
Myx	1.418
Myz	3.184
Mzx	0.552



[ShakeCast-summary] ShakeCast Damage Summary

@- ShakeCast <shake@dawn.gps.caltech.edu> (sent by shakecast-summary-bounces@scsnmail.gps.caltech.edu)  
To: shakecast-summary@unix1.gps.caltech.edu

**ShakeCast Event: Magnitude 5.2**

ShakeMap (Unnamed Event) Event ID 51181705 Version 3  
Event Location: 57 km WNW of Punta Gorda, CA  
Event Time: 2007-05-09 07:50:05  
Generated at: 2007-05-09 07:26:52  
Reported by: Server ID = 1000, DNS = dawn.gps.caltech.edu

**Damage Summary**

Number of Facilities Reported: 24  
Max Value: MMI: 3.91;  
Number of Reports of Likely Damage: 0  
Number of Reports of Possible Damage: 0

**Facility Damage Estimates from ShakeMap**

Facility Damage Level Metric Value Exceedance Ratio  
Petaluma Unlikely MMI 3.91 0.728  
Ferndale Unlikely MMI 3.59 0.847  
Rio Dell Unlikely MMI 3.45 0.613  
Fortuna Unlikely MMI 3.39 0.598  
Bayview Unlikely MMI 3.2 0.550  
Pine Hills Unlikely MMI 3.19 0.547  
Eureka Unlikely MMI 3.14 0.535  
Hydesville Unlikely MMI 3.14 0.535  
Cuttien Unlikely MMI 3.02 0.505  
Humboldt Hill Unlikely MMI 3 0.500  
Myrtletown Unlikely MMI 2.92 0.480  
McKineyville Unlikely MMI 2.81 0.453  
Arcata Unlikely MMI 2.8 0.450  
Redway Unlikely MMI 2.59 0.397  
Blue Lake Unlikely MMI 2.37 0.343  
Trinidad Unlikely MMI 2.37 0.343  
Westhaven-Moonstone Unlikely MMI 2.35 0.338  
Cape Vizcaino Unlikely MMI 2.02 0.255  
Rockport Unlikely MMI 2.02 0.255  
Willow Creek Unlikely MMI 1.76 0.190  
Welchopex Unlikely MMI 1.62 0.155  
Laytonville Unlikely MMI 1.56 0.140  
Covelo Unlikely MMI 1.38 0.095  
Hayfork Unlikely MMI 1.37 0.093 [END]

ShakeCast-Summary mailing list  
shakecast-summary@scsnmail.gps.caltech.edu  
353011/00111-008-001500-000/001500-118181705/sha

**ShakeCast Summary Nuclear Power Plants: 51181705 (1)**

ShakeCast <shake@gldrd2.cr.usgs.gov>  
To: wald@usgs.gov

**ShakeCast Event: Magnitude 5.2**

ShakeMap (Unnamed Event) Version 3  
Event Location: 57 km WNW of Punta Gorda, CA  
Event Time: 2007-05-09 07:50:05  
Generated at: 2007-05-09 16:07:03  
Reported by: Server ID = 1301, DNS = localhost

**Damage Summary**

Number of NUCLEAR Facility Reported: 1  
Max Value: MMI: 3; Acceleration: (not measured)  
Number of Reports of Likely Damage: 0  
Number of Reports of Possible Damage: 0  
Number of Reports of Unlikely Damage: 1

**FACILITY Damage Estimates from ShakeMap**

Nuclear Power Plant	Damage Level	Metric	Value	Exceedance Ratio
Humboldt Bay, Eureka, CA	Unlikely	MMI	3	0.500

[END]